

in Shelby Co., Ohio, and in Preble Co., Ohio, a heavy hail storm caused some damage to crops. A very heavy rain storm caused damage to crops and bridges at Oregon, Mo. A thunder-storm, with heavy rain, and hail the size of walnuts,

occurred at Kansas City, Mo., in the afternoon, with maximum wind velocity 40 miles per hour from the northwest. A destructive rain and hail storm was reported at Lead City, S. Dak.; houses were flooded and washouts occurred on the railroad.

INLAND NAVIGATION.

Heights of rivers above low-water mark, May, 1891 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River.</i>						
Shreveport, La	29.9	10	24.4	31	15.4	9.0
<i>Arkansas River.</i>						
Fort Smith, Ark	22.0	31	17.0	19	4.4	12.6
Little Rock, Ark	23.0	9	16.0	22	7.2	8.8
<i>Missouri River.</i>						
Fort Buford, N. Dak		30, 31	11.4	1	4.2	7.2
Sioux City, Iowa	18.7	31	9.8	18	6.7	3.1
Omaha, Nebr	18.0	25, 31	9.3	14, 15, 17, 18	7.5	1.8
Kansas City, Mo	21.0	27	13.7	16, 20	7.8	5.9
<i>Mississippi River.</i>						
Saint Paul, Minn	14.0	1	5.2	28, 29, 30	2.8	2.4
La Crosse, Wis	13.0	1	10.1	31	4.1	6.0
Dubuque, Iowa	16.0	1, 2	13.9	31	4.7	9.2
Davenport, Iowa	15.0	3, 5	10.3	31	3.3	7.0
Keokuk, Iowa	14.0	5, 6	10.3	31	3.9	6.4
Saint Louis, Mo	30.0	5	20.7	22	13.1	7.6
Cairo, Ill	40.0	1	30.0	24, 25	13.7	16.3
Memphis, Tenn	33.0	1	27.2	30	10.8	16.4
Vicksburg, Miss	41.0	1, 2	47.3	31	18.5	28.8
New Orleans, La	13.0	7	15.3	31	9.2	6.1
<i>Ohio River.</i>						
Pittsburg, Pa	22.0	25	7.5	8	1.9	5.6
Parkersburg, W. Va	33.0	28	6.9	19, 21	3.8	3.1
Cincinnati, Ohio	45.0	1	14.7	18	7.9	6.8
Louisville, Ky	24.0	1	7.8	19, 20	4.9	2.9
<i>Cumberland River.</i>						
Nashville, Tenn	40.0	1	10.1	31	2.4	7.7
<i>Tennessee River.</i>						
Chattanooga, Tenn	33.0	1	5.9	25	3.8	2.1
<i>Monongahela River.</i>						
Pittsburg, Pa	29.0	25	7.5	8	1.9	5.6
<i>Savannah River.</i>						
Augusta, Ga	32.0	16	11.8	24, 25, 26	8.1	3.7
<i>Willamette River.</i>						
Portland, Oregon	15.0	31	13.7	3	7.7	6.0
<i>Susquehanna River.</i>						
Harrisburg, Pa	17.0	1	3.7	21, 22, 31	2.0	1.7
<i>Alabama River.</i>						
Montgomery, Ala	48.0	1	6.5	18, 19	3.9	2.6

FLOODS.

The Rio Grande River remained extremely high, and much damage was caused to buildings and other property during the first half of the month. On the 4th the water was running over the banks at several points above Albuquerque, N. Mex., devastating fields. Heavy snow drifts were reported in the mountains of south Colorado. On the 6th a great portion of the southern part of El Paso, Tex., was under water, and the river was rising rapidly at Albuquerque. All streams in north New Mexico were running bank-full, and the snow banks in the mountains were melting slowly. The river continued to rise at El Paso on the 7th, 8th, and 9th, and the Pecos River was the highest ever known. On the 14th the water was slowly subsiding at Albuquerque, and the river reached its highest stage at El Paso on the 15th. The Mississippi River remained above the danger-line at Vicksburg, Miss., until the 15th, and at New Orleans, La., until the 22d. The Lake Concordia, Miss., levee gave way, submerging the Ferriday plantation, and covering a part of the track of the New Orleans and Northwestern Railroad. The rear protection levee of Speranza plantation, 25 miles above New Orleans, broke on the 11th, and the plantation was submerged.

The lower Mississippi river reached a dangerous stage the latter part of February. On the 23d of that month it stood at or near the danger-line at points south of Memphis, Tenn., and on February 26th it reached the danger-line at Memphis and was 1.9 foot above the danger-line at New Orleans, La. During March the river remained above the danger-line south of Memphis, and continued above at Vicksburg and New Orleans during April. The first break in the levees occurred at Vidalia, La., March 10th. Several other breaks occurred in Mississippi and Louisiana, but no serious damage was caused.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroras were reported as follows: 4th, Kent's Hill and Orono, Me.; Lyons, N. Y.; Hayward and Medford, Wis. 7th, Sycamore, Ill.; Alta and Delaware, Iowa; Kent's Hill, Me.; Red Wing, Minn.; South Canisteo, N. Y.; Fort Buford, N. Dak.; Kimball, S. Dak. 8th, Orono, Me. 11th, Glendive, Mont. 13th, Alta and Cresco, Iowa; Kent's Hill, Me.; Blue Hill Observatory and Cambridge, Mass.; Sault de Ste. Marie, Mich.; Montevideo, Minn.; Fort Custer, Mont.; Plymouth, N. H.; Lyons, N. Y.; Fort Sully, S. Dak.; Peshtigo, Wis. 14th, Alta, Iowa; Orono, Me.; Blue Hill Observatory, Mass.; Fort Custer, Mont.; Plymouth, N. H.; Fort Sully and Wolsey, S. Dak. 15th, Webster, S. Dak.; Peshtigo, Wis. 16th and 17th, Fort Custer, Mont. 24th and 25th, South Canisteo, N. Y. 27th, Alta, Iowa. 28th, Hayward, Wis. 29th, Tatoosh Island, Wash.

Fort Custer, Mont., 13-14th: at 10.25 p. m., 13th, an auroral arch extended over about 40° azimuth and to 20° altitude, with "merry dancers" shooting to 40° to 50° altitude. The arch was of a pale yellow color; it disappeared at times, but the "merry dancers" were visible until midnight; they reappeared at 2.30 a. m., 14th, and disappeared at dawn of day.

THUNDER-STORMS.

Thunder-storms were reported as follows: east of the Rocky Mountains thunder-storms were reported in the greatest num-

ber of states, 24, on the 19th; in 23 on the 20th; in 15 to 20 on the 1st, 3d, 11th, 12th, 18th, 21st to 26th, and 29th to 31st; in 10 to 14 on the 2d, 4th, 9th, 10th, 13th, 15th to 17th, 27th, and 28th; in 5 to 9 on the 5th, 7th, 8th, and 14th; and in 3 on the 6th. There was no date for which thunder-storms were not reported east of the Rocky Mountains.

East of the Rocky Mountains thunder-storms were reported on the greatest number of dates, 23, in Iowa and N. C.: on 22 in Mo.; on 21 in Tex.; on 15 to 20 in Fla., Kans., Miss., Nebr., and S. Dak.; on 10 to 14 in Ark., Ga., Ill., Ky., Md., Mich., N. J., N. Dak., Ohio, Okla. T., S. C., Tenn., and Va., on 5 to 9 in Ala., Conn., Ind., La., Me., Mass., Minn., Mont., Pa., and Wis.; and on 1 to 4 in Del., D. C., Ind. T., N. H., N. Y., R. I., Vt., and W. Va. West of the Rocky Mountains thunder-storms were reported in Ariz. on the 4th, 7th to 11th, 19th, 20th, 22d, 23d, 26th, 27th, and 31st; in Cal. on the 13th, 15th, 17th to 20th, 22d to 27th, 29th, and 30th; in Colo. on the 2d, 3d, 5th to 11th, 13th to 28th, and 30th; in Idaho on the 3d, 13th to 16th, 23d to 25th, 27th, 29th, and 30th; in Nev. on the 6th, 7th, 13th, 16th to 18th, 20th to 23d, and 25th to 27th; in New Mex. on the 3d, 4th, 7th, 8th, 10th, 11th, 13th, 14th, 16th, 18th to 21st, and 24th; in Oregon on the 6th, 13th to 15th, and 24th to 31st; in Utah on the 6th, 7th, 13th to 15th, 17th, 18th, 20th to 25th, and 27th to 29th; in Wash. on the 4th, 9th, 12th, 16th, and 25th to 27th; and in Wyo. on the 7th, 14th, 15th, 17th, 21st, 23d, 24th, and 27th.